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| 10/591,638  | 09/05/2006  | Shinji Yasuhara      | AI-426 NP           | 3287             |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/591,638

**Applicant(s)**

YASUHARA ET AL.

**Examiner**

NURI ALTUN

**Art Unit**

3657

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 12-16 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 12-16 and 19-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Amendment received on 03/03/2009 has been acknowledged. Claims 3-11, 17 and 18 have been cancelled. Claim 21 has been added.

#### ***Claim Objections***

Claim objections have been overcome.

#### ***Claim Rejections - 35 USC § 112***

Claim rejections under 35 U.S.C. 112, second paragraph have been overcome.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **1, 2, 12, 16 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Triller et al. (JP 2002242994)**.

**As per claim 1**, Triller et al. teach a power transmission chain, comprising:

a plurality of link units (2, 4, 6) aligned in a traveling direction of the chain (see Fig. 1 and 11);

a plurality of connecting members (10) that link the plurality of link units (2) to one another in a manner so as to be bendable (see paragraph 0001);

and guiding members (34) provided correspondingly to the respective connecting members (10) (see Fig. 5),

wherein: each of the link units (2) includes a plurality of links aligned in a width direction of the chain orthogonal to the traveling direction of the chain (see Fig. 11);

each of the links includes first and second through-holes (8) aligned in the traveling direction of the chain for a corresponding connecting member to be inserted therethrough (see paragraph 0009, Fig. 1 and 9);

each of the connecting members (10) includes first (12) and second power transmission members (14);

either one of the first (12) and second power transmission members (14) is guided by the guiding member (34) (see paragraph 0015), and consequently the one power transmission member moves to the other transmission member while coming into contact with the other power transmission member in a contact state including at least one of rolling contact and sliding contact (see paragraph 0001; since the pins are located on rolling surface, it is construed that first pin moves to the second one in a rolling contact state);

both a corresponding first power transmission member (left side of 14) and a corresponding second power transmission member (right side of 12) are respectively fit into the first through-hole (8) in each of the links (2) in a manner so as to enable relative movements (see paragraph 0011 and Fig. 1; since there is a gap in between the through-holes, it is construed that pins 12, 14 enable relative movements),

both a corresponding first power transmission member (left side of 14) and a corresponding second power transmission member (right side of 12) are respectively fit into the second through-hole (8) in each of the links (2) in a manner so as to enable

relative movements (see paragraph 0011 and Fig. 1; since there is a gap in between the through-holes, it is construed that pins 12, 14 enable relative movements),

the guiding members including first and second guiding members (34) being provided, respectively, at each end portion of a pair of end portions of a corresponding connecting member (10) as the guiding member (see Fig. 5), the first and second guiding members cooperating to prevent falling off of the corresponding connecting member and the corresponding link (see paragraph 0015; since the guiding member is provided at the end of the link and guiding member, it will inherently prevent them from falling off);

the first guiding member (34) includes a first insert hole (36) at its center, to which a corresponding first power transmission member (12) is fixed and into which a corresponding second power transmission member (14) is fit with a play (see paragraph 0015; since the corners of the hole is cut off and pins are inserted therein, it is construed that pin is fit into the hole with a play);

the first insert hole includes a first guiding surface (40) that guides the corresponding second power transmission member (14) (see paragraph 0015) for causing the corresponding second power transmission member to come into contact with the corresponding first power transmission member in a contact state including at least one of rolling contact and sliding contact (see paragraph 0001; since the pins are located on rolling surface, it is construed that first pin moves to the second one in a rolling contact state);

the second guiding member (34) includes a second insert hole (36), to which a corresponding second power transmission member (14) is fixed and into which a corresponding first power transmission member (12) is fit with a play (see paragraph 0015; since the corners of the hole is cut off and pins are inserted therein, it is construed that pin is fit into the hole with a play);

the second insert hole includes a second guiding surface (40) that guides the corresponding first power transmission member (12) (see paragraph 0015) for causing the corresponding first power transmission member to come into contact with the corresponding second power transmission member in a contact state including at least one of rolling contact and sliding contact (see paragraph 0001; since the pins are located on rolling surface, it is construed that first pin moves to the second one in a rolling contact state).

Triller et al. doesn't explicitly disclose the first guiding member is shaped like a disc, the first and the second guiding members are separated from each other.

Based on the teaching of Triller et al. that teaches the connecting portion (32) of the guide member is formed elastic for elastic bending and expanding (paragraph 0016), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Triller et al. to separate the guiding member into two in order to reduce cost and allow back of the chain to engage elements without interference (when the guide is separated into two pieces, each piece will have a disc shape.)

Also, MPEP Section 2144.04 IV B states that the configuration of a claimed part was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed part was significant.

MPEP Section 2144.04 V C states that if it were considered desirable for any reason, it would be obvious to make the part removable for that purpose.

**As per claim 2**, Triller et al. teach each of the links further includes a communication groove (middle portion of 8) through which the first and second through-holes (8) communicate with each other (see Fig. 9 and 10).

**As per claim 12**, Triller et al. teach the first insert hole (36) of the first guiding member has an inner peripheral surface that includes a fitting portion and a loosely fitting portion (see Figs. 2 and 4), and

the corresponding first power transmission member (12) is fixed by being press-fit into said fitting portion (see paragraph 0011; it is inherent that second pin is press-fit since the pins are tightly inserted).

**As per claim 16**, Triller et al. teach first and second pulleys having, respectively, a pair of sheave surfaces that oppose to each other in a shape of a circular conical surface, wherein power is transmitted between the first and second pulleys via the power transmission (see paragraph 0002; since paragraph 0002 teaches conical disk stepless transmission, it inherently has at least 2 pulleys and sheaves opposing each other which transmits power).

**As per claim 21**, Triller et al. teach a power transmission chain, comprising:

a plurality of link units (2, 4, 6) aligned in a traveling direction of the power transmission chain (see Fig. 1 and 11), each of the link units (2) including a plurality of links aligned in a width direction of said power transmission chain orthogonal to the traveling direction (see Fig. 11); each of the links including first and second through-holes (8) aligned in the traveling direction;

a plurality of first and second connecting members (10) linking the plurality of link units (2) in a bendable manner (paragraph 0001), each of said first and second connecting members including a first power transmission member (12) and a second power transmission member (14), one of said first connecting members (left side of 14) being inserted through the first through-holes (8) of the plurality of links (2) of each link unit, one of said second connecting members (right side of 12) being inserted through the second through-holes (8) of the plurality of links of each link unit, in a manner that enables relative movements between the plurality of links and the first and second connecting members (see paragraph 0011 and Fig. 1; since there is a gap in between the through-holes, it is construed that pins 12, 14 enable relative movements); and

a plurality of first and second guiding members (34), one of said first guiding members being disposed at each end of a corresponding one of said first connecting members (10), and one of said second guiding members being disposed at each end of a corresponding one of said second connecting members (10) (see Fig. 5), wherein

each of said first guiding members includes a first insert hole, to which a corresponding first power transmission member (12) is fixed and into which a corresponding second power transmission member (14) is fit with a play (see paragraph



0015; since the corners of the hole is cut off and pins are inserted therein, it is construed that pin is fit into the hole with a play);

the first insert hole including a first guiding surface (40) that guides the corresponding second power transmission member (14) (see paragraph 0015) by causing the corresponding second power transmission member to come into contact with the first power transmission member in a first contact state including at least one of a rolling contact and a sliding contact (see paragraph 0001; since the pins are located on rolling surface, it is construed that first pin moves to the second one in a rolling contact state);

each of said second guiding member (34) includes a second insert hole (36), to which a corresponding second power transmission member (14) is fixed and into which a corresponding first power transmission member (12) is fit with a play (see paragraph 0015; since the corners of the hole is cut off and pins are inserted therein, it is construed that pin is fit into the hole with a play);

the second insert hole including a second guiding surface (40) that guides the corresponding first power transmission member (12) (see paragraph 0015) by causing the corresponding first power transmission member to come into contact with the second power transmission member in a second contact state including at least one of the rolling contact and the sliding contact (see paragraph 0001; since the pins are located on rolling surface, it is construed that first pin moves to the second one in a rolling contact state).

Triller et al. doesn't explicitly disclose the first guiding member is shaped like a disc, the first and the second guiding members are separated from each other.

Based on the teaching of Triller et al. that teaches the connecting portion (32) of the guide member is elastic (paragraph 0016), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Triller et al. to separate the guiding member into two in order to reduce cost and allow back of the chain to engage elements without interference (when the guide is separated into two pieces, each piece will have a disc shape.)

Also, MPEP Section 2144.04 IV B states that the configuration of a claimed part was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed part was significant.

MPEP Section 2144.04 V C states that if it were considered desirable for any reason, it would be obvious to make the part removable for that purpose.

3. Claims **13 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Triller et al. (JP 2002242994)**, in view of **Van Rooij et al. (5,728,021)**.

**As per claim 13**, Triller et al. teach all the structural elements of the claimed invention, as mentioned in claim 1, but doesn't explicitly disclose a locus of movement of a contact point between the first and second power transmission members of each of the connecting members shape an involute curve.

Van Rooij et al. teach a transmission chain for a cone pulley transmission having locus of movement of a contact point (93) between the first (89) and second power

transmission members (101) of each of the connecting members shape an involute curve (col.5, lines 37-42 and see Fig. 9).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Triller et al. to include the contact point taught by Van Rooij et al. in order to provide better connection between the pins.

**As per claim 19**, Triller et al. teach first and second pulleys having, respectively, a pair of sheave surfaces that oppose to each other in a shape of a circular conical surface, wherein power is transmitted between the first and second pulleys via the power transmission (see paragraph 0002; since paragraph 0002 teaches conical disk stepless transmission, it inherently has at least 2 pulleys and sheaves opposing each other which transmits power).

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Triller et al. (JP 2002242994)**, as applied to claim 1, in view of **Kanehira et al. (6,432,011)**.

Triller et al. teach all the structural elements of the claimed invention, as mentioned in claim 1 above, but don't explicitly disclose loci of movement of contact points of the first and second power transmission members of the first connecting members are different from loci of movement of contact points of the first and second power transmission members of the second connecting members; and at least one of the first connecting members and the second connecting members are arrayed randomly at least in a partial region of the power transmission chain in the traveling direction of the power transmission chain.

Kanehira et al. teach a silent chain having the plurality of connecting members including the first (R1) and second connecting members (R2);

loci of movement of contact points of the first (L1) and second power transmission members (S1) of the first connecting members (R1) are different from loci of movement of contact points of the first (L2) and second power transmission members (S2) of the second connecting members (R2) (col.4, lines 48-63);

and at least one of the first connecting members (R1) and the second connecting members (R2) are arrayed randomly at least in a partial region of the power transmission chain in the traveling direction of the power transmission chain (col.4 line 64 – col.5 line 3).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the mechanism of Triller et al. to include the contact point and configuration taught by Kanehira et al. in order to provide better connection between the pins.

5. Claims **15 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Triller et al. (JP 2002242994)**, in view of **Baumann et al. (2002/0068654)**.

**As per claim 15**, Triller et al. teach all the structural elements of the claimed invention, as mentioned in claim 1, but doesn't explicitly disclose the plurality of link units include link units of a first specification and link units of a second specification; a disposition interval between a first power transmission member inserted through the first through-hole and a first power transmission member inserted through the second through-hole in each link of the link units of the first specification is relatively long; a

disposition interval between a first power transmission member inserted through the first through-hole and a first power transmission member inserted through the second through-hole in each link of the link units of the second specification is relatively short; and at least one of the link units of the first specification and the link units of the second specification are arrayed randomly at least in a partial region of the power transmission chain in the traveling direction of chain.

Baumann et al. teach a plate-link chain having the plurality of link units including link units of a first specification and link units of a second specification (see Fig. 1);

a disposition interval (7) between a first power transmission member (3) inserted through the first through-hole and a first power transmission member inserted through the second through-hole (4) in each link of the link units of the first specification is relatively long; a disposition interval (7) between a first power transmission member inserted through the first through-hole (4) and a first power transmission member (3) inserted through the second through-hole in each link of the link units of the second specification is relatively short (see paragraph 0054; since the disposition interval varies irregularly within the limits depending on the extent of pins and spacing of the holes, it is construed that intervals could be relatively long or short);

and at least one of the link units of the first specification and the link units of the second specification are arrayed randomly at least in a partial region of the power transmission chain in the traveling direction of chain (see paragraph 0054 and Fig. 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Triller et al. to include the disposition interval taught by Baumann et al. in order to reduce noise generation.

**As per claim 20**, Triller et al. teach first and second pulleys having, respectively, a pair of sheave surfaces that oppose to each other in a shape of a circular conical surface, wherein power is transmitted between the first and second pulleys via the power transmission (see paragraph 0002; since paragraph 0002 teaches conical disk stepless transmission, it inherently has at least 2 pulleys and sheaves opposing each other which transmits power).

#### ***Response to Arguments***

Applicants' arguments filed 03/03/2009 have been fully considered but they are not persuasive.

Applicants first argue Triller et al. do not disclose separated, disc-shaped first guiding members and second guiding members. Based on the teaching of Triller et al. that teaches the connecting portion (32) of the guide member is formed elastic for elastic bending and expanding (paragraph 0016), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Triller et al. to separate the guiding member into two in order to reduce cost and allow back of the chain to engage elements without interference (when the guide is separated into two pieces, each piece will have a disc shape.)

Applicants next argue that Triller et al. fail to disclose each first or second guiding member includes an insert hole, to which a corresponding power transmission member

is fit with a play. The examiner respectfully disagrees. Since Fig. 4 and paragraph 0015 of the patent document indicate that the corners of the hole are cut off and pins are inserted therein, it is construed that pin is fit into the hole with a play.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **NURI ALTUN** whose telephone number is (571)270-5807. The examiner can normally be reached on Mon-Fri 7:30 - 5:00 with first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272 7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley T King/  
Primary Examiner, Art Unit 3657

NBA